

REAL-TIME OBJECT TRACKING USING COMPUTER VISION
BORDER DEFENCE SYSTEM
DESIGN PROJECT - APPLICATION

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DEFINING THE PROBLEM

India is widely believed to have arrived on the global state. India has successfully positioned herself as one of the core members of influential nations. But the security scenario of India has attracted more vulnerability and complexities like never before as India has the disadvantage of being situated in close proximity to what is being described as the epicentre of global terrorism.



Presently our borders are protected by iron spike fences and a watchtower containing soldiers, continuously flashing the light over the border area. Those persons are fully responsible to prevent any intrusion. This system will not fully remove the responsibility of the soldiers, but manages to take the maximum responsibility and thus reduces human mistakes on the border. The basic purpose of the paper is to enhance the border security electronically with automation and with that to reduce the work load and responsibility of the soldiers who has to work continuously on the border.

OUR SOLUTION

We aimed to find a suitable and effective solution for the above-mentioned problems. Here by it clarifies the significance of an automatic firing system which will replace soldiers with its effective protective measures. Our defence system comprises of features like video recording, automatic human recognition, automatic motion sensing, automatic firing etc. this system, video cameras and mat lab processing in hand with embedded system can not only detect intrusion attempts, but also provide a video coverage of the suspicious area, for remote vigilance.



Also our system can withstand extreme climatic condition, thus requiring less maintenance. In this concept we have designed a promising prototype, which on further development with sufficient time and resources, can be raised to international level.

SUMMARISING THE PROCESS

- To accomplish this we propose a mechanism which will employ image processing in which a camera will be continuously observing the area under surveillance.
- This data will be then processed, which will be running on a computer and will be able to detect the presence of intruder inside the border.
- Depending on this processed data the information about the intruder location will be sent to a microcontroller through the serial port and then a servomotor-controlled gun will be used to point in the direction of the intruder.
- This mechanism will be online, that is the gun will be continuously pointing the direction of the intruder.
- Further depending on range, that is distance from the gun it can be activated and the target will be shot down.